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Zoological Research

TWO NEW GENERA OF ANT SUBFAMILIES DORYLINAE AND PONERINAE (HYMENOPTERA: FORMICIDAE) FROM YUNNAN, CHINA

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Abstract: Two new genera of the ant subfamilies Dorylinae and Ponerinae are collected and described from the tropical rain forest of Xishuangbanna Nature Reserve, Yunnan Province, China. *Yunodorylus* gen. nov. belongs to the subfamily Dorylinae, which is monotypic and terrestrial with 2 colonies of the species *Y. sexspinus* sp. nov. collected from the soil sample of seasonal rain forest and deciduous monsoon forest. *Bannapone* gen. nov. belongs to the tribe Amblyoponini of Ponerinae, which is also monotypic and known only from a dealate female of the species *B. mulanae* sp. nov. collected from a soil sample in semi-evergreen monsoon forest.

Key words: Hymenoptera; Formicidae; *Yunodorylus* gen. nov.; *Bannapone* gen. nov.; China

Two new genera of the ant family Formicidae are described from the tropical rain forest of Xishuangbanna Nature Reserve in Southern Yunnan Province. *Yunodorylus* gen. nov. belongs to the subfamily Dorylinae based on the following characters: workers are polymorphic, head is roughly rectangular, eyes and ocelli are absent, dorsum of alitrunk is relatively flat, waist has only 1 pedicel, gaster large and relatively depressed (Bolton, 1994). It is the second genus found in the subfamily (Bolton, 1995). Only 1 species of the new genus is known, which constructs nests in the soil and was found in the virgin seasonal rain forest and slightly disturbed deciduous monsoon forest.

Bannapone gen. nov. belongs to the tribe Amblyoponini of the subfamily Ponerinae based on the following characters: body with a single petiole between alitrunk and gaster, sting present at apex of gaster and functional, pygidium and hypopygidium both unarmed, pretarsal claws simple, propodeum lacks spines, labrum without peg-like teeth, and petiole broadly attached to first gastral segment (Bolton, 1994). The new genus becomes the 5th living genus of the tribe in Oriental and Indo-Australian Regions and known only from a dealate female collected from a soil sample in semi-evergreen monsoon forest.

Standard measurements and indices are as defined by Bolton (1975): TL = Total length, HL = Head length, HW = Head width, CI = Cephalic index = HW × 100/HL, SL = Scape length, SI = Scape index = SL × 100/HW, PW = Pronotal width, AL = Alitrunk length, ED = Maximum diameter of eye, ML = Mandibular length, PL = Petiole length, PH = Petiole height, DPW = Dorsal petiole width, LPI = Lateral petiole index = PH × 100/PL, DPI = DPW × 100/PL. All measurements are expressed in millimeters.

The type specimens are deposited in the Insect Collection, Faculty of Resources, Southwest Forestry College, Kunming, Yunnan Province, P. R. China.

Yunodorylus gen. nov. (Figs. 1 - 6)

Diagnosis of worker: Weakly polymorphic and terrestrial. Palpi formula 2,2 (3 individuals dissected).

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Mandibles elongate triangular with a long and oblique masticatory margin. Masticatory margin with 6 teeth, the large apical tooth is followed by a smaller tooth and a series of 4 minute denticles. Clypeus very narrow and only visible on lateral sides at bases of mandibles. Frontal lobes narrow and suberect, reached to anterior margin of head, antennal sockets exposed. Eyes and ocelli both absent. Antennae short and thick, with 12 segments. Head roughly rectangular. Dorsum of alitrunk straight and flat, promesonotal suture and metanotal groove absent. Propodeum unarmed. Propodeal spiracle small, low on the side and close to the large metapleural gland bulla. Propodel lobes absent. Middle and hind tibiae each with only a single spur, which is large and pectinate. Waist consists of a single segment, the petiole roughly rectangular, subpetiolar process large. Gaster large, spiracles of segments 1 – 5 exposed. Pygidium without a median impression, lateroposterior margins armed with a row of minute peg-like spines, each side with 6 ones. Sting short and functional. Hairs sparse, pubescences abundant.

Female and male unknown.

Type-species: *Yunodorylus sexspinus* sp. nov.

Range: Oriental.

Notes: Based on the general morphological characters, the polymorphic worker caste and the terrestrial habit, the new genus is obviously belongs to the subfamily Dorylinae. However, the genus has some special features compared with the typical genus *Dorylus*: mandibles have long and oblique masticatory margin and armed with more than 3 teeth, promesonotal suture absent, propodeal spiracles low on side, pygidium without a median impression and armed with 2 rows of minute peg-like spines. These features can also observed in the subfamily Cerapachyinae. It means the new genus is a possible inter-link between the subfamilies Dorylinae and Cerapachyinae in evolution.

After description of the new genus, the characters of the subfamily Dorylinae need to be modified as: Workers polymorphic and terrestrial. Head rectangular, eyes and ocelli absent. Mandibles narrow or elongate triangular, masticatory margin narrow or long and oblique. Frontal lobes narrow and suberect. Dorsum of alitrunk flat, promesonotal suture present or absent. Propodeal spiracle high or low on lateral side. Waist consists of 1 segment, petiole roughly rectangular, subpetiolar process large or small. Gaster large and weakly depressed. Pygidium with a pair of spines and a median impression or with rows of minute peg-like spines but without a median impression. The 2 known genera of Dorylinae can be distinguished as below.

Key to genera of Dorylinae based on the worker caste

Mandibles narrow, masticatory margin narrow, armed with 1 – 3 teeth. Antennae with 8 – 12 segments. Promesonotal suture present. Propodeal spiracle large, high on side and situated far forward on the sclerite. Pygidium with a median impression and armed with a pair of posteriorly directed short spines (Figs. 7 – 9) (Old World tropics and subtropics except Madagascar and Australia) ······························ *Dorylus* Fabricius

Mandibles elongate triangular, masticatory margin long and oblique, armed with 6 teeth. Antennae with 12 segments. Promesonotal suture absent. Propodeal spiracle small, low on side and close to the large metapleural gland bulla. Pygidium without a median impression but armed with 2 rows of minute peg-like spines, each side has 6 ones (Figs. 1 – 6) (Oriental) ························· *Yunodorylus* gen. nov.

***Yunodorylus sexspinus*, sp. nov.** (Figs. 1 – 6)

Holotype worker: TL 3.4, HL 0.77, HW 0.70, CI 91, SL 0.37, SI 52, PW 0.50, AL 0.93, ML 0.40, PL 0.27, PH 0.40, DPW 0.37, LPI 150, DPI 138. Head nearly square, slightly longer than broad, narrowered anteriorly. In full-face view, occiput shallowly depressed, occipital corners roundly prominent, lateral sides evenly convex. Anterior portion of gena convex. Mandibles elongate triangular, the large apical tooth followed by a smaller preapical tooth and 4 minute denticles. Clypeus reduced and only visible on lateral sides. Frontal lobes suberect and reached to anterior margin of head. Antennae with 12 segments, apex of scape reached to 7/15 of the distance from antennal socket to occipital corner, flagellum distinctly incrassate towards apex. Eyes and ocelli absent. In profile view, dorsum of alitrunk straight and flat, very slightly convex, posterodorsal corner of propodeum rounded. In dorsal view, alitrunk roughly rectangular, lateral sides weakly impressed at midlength. In profile view petiolar node roughly rectangular, very thick, anterior face straight, dorsal and posterior faces roundly convex, anterodorsal

angle blunt, posterodorsal angle indistinct. Subpetiolar process large, roughly rectangular, posteroventrally pointed. In dorsal view petiolar node broader than long, width : length = 11 : 8, anterior face straight, posterior face and lateral sides roundly convex. Dorsum of pygidium slightly depressed, lateroposterior margins with 6 minute peg-like spines on each side. Sting extruding. Mandibles, head, and alitrunk with sparse large punctures, interspace smooth and shining, distance between punctures larger than or equal to diameter of a puncture. Sides of alitrunk and petiolar node with sparse fine punctures, interspace granulate, less shining. Gaster with punctures from which setae arising, interspace smooth. Dorsum of the whole body with a few suberect hairs and dense decumbent pubescences. Antennal scapes and tibiae of legs with a few suberect hairs and dense decumbent pubescences. Body in color yellowish brown, mandibles and antennae dark reddish brown, legs brownish yellow.

Paratype workers: TL 2.3 – 3.6, HL 0.53 – 0.77, HW 0.43 – 0.73, CI 79 – 91, SL 0.27 – 0.40, SI 50 – 62, PW 0.30 – 0.53, AL 0.67 – 1.00, ML 0.27 – 0.43, PL 0.20 – 0.30, PH 0.23 – 0.43, DPW 0.22 – 0.40, LPI 117 – 150, DPI 108 – 138 (10 measured). As holotype, but body varying in size, color brownish yellow to dark reddish brown.

Holotype: worker, No. A97 – 2064, 730 m, Bubang Village, Mengla County, Yunnan Province, from a colony constructs nest in soil in seasonal rain forest, 1997 – Ⅷ – 17 (ZENG Guang). Paratypes: 34 workers, from the same colony as the holotype and with same data as holotype; 18 workers, No. A98 – 775, 1 040 m, Longlin Village, Mengla County, Yunnan Province, from a soil sample in deciduous monsoon forest, 1998 – Ⅲ – 14 (ZENG Guang).

Biological notes: *Y. sexspinus* sp. nov. constructs nest in the soil and forage in soil or under litter. A nest including 385 individuals was observed in a soil sample of seasonal rain forest. Another nest containing 20 individuals was found in a soil sample of deciduous monsoon forest. Other individuals were also collected in soil of mountain rain forest and warm deciduous broad-leaf forest.

Distribution: China: Yunnan Province (Mengla County, Menghai County, Jinghong County). Altitude: 730 – 1 280 m.

Bannapone gen. nov. (Figs. 10 – 12)

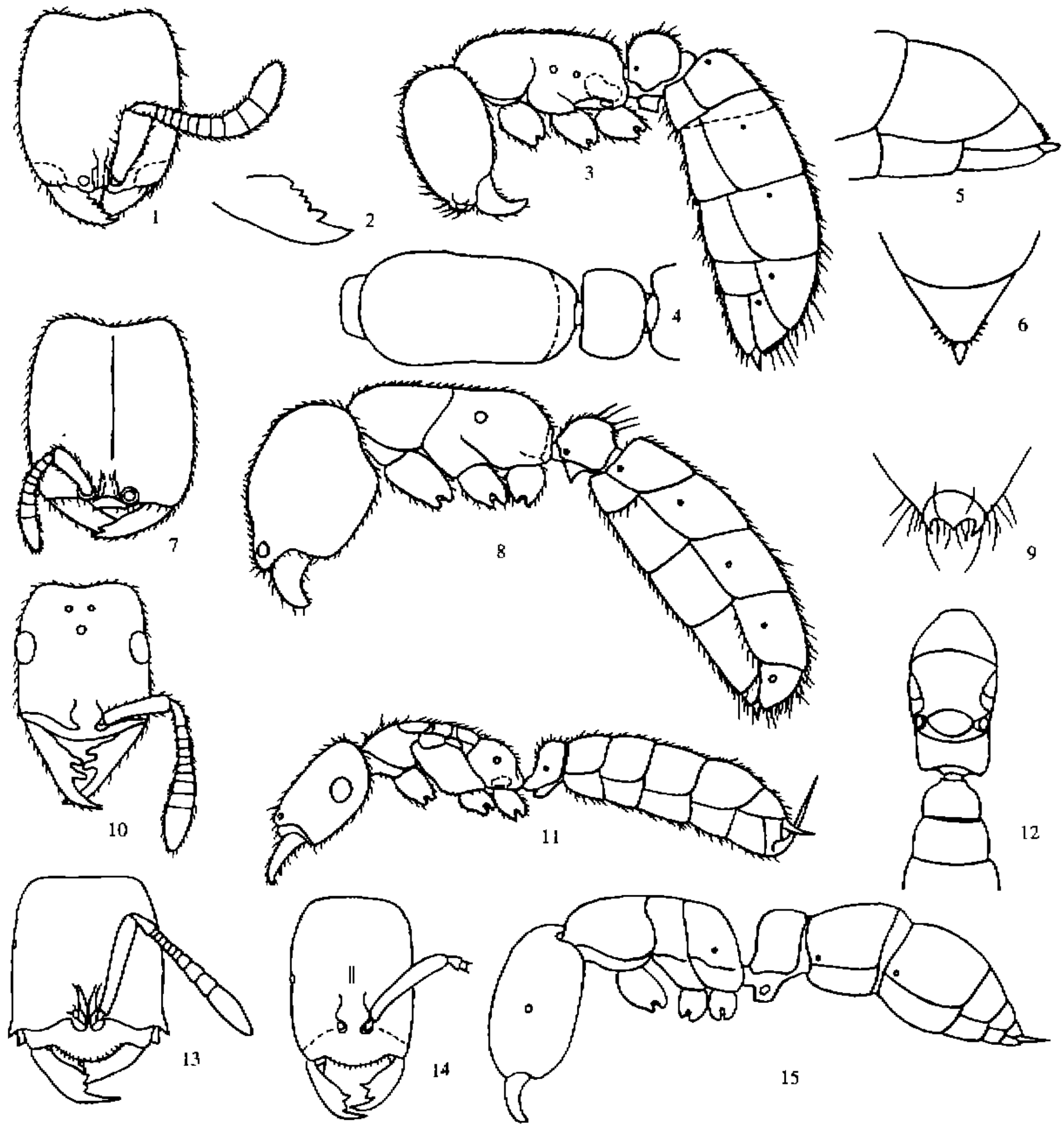
Diagnosis of dealate female: Body small. Head relatively depressed. Mandibles narrow, long triangular, inner margin shorter than masticatory margin. Masticatory margin with 3 teeth, the apical tooth very long and bifid at most apex, followed by 2 blunt finger-like basal teeth. Clypeus narrow and transverse. Frontal lobes horizontal, closely approximated and partially covered the antennal sockets. Eyes of moderate size, at the mid-length of the sides of the head. Ocelli present. Antennae 11-segmented, with a gradually incrassate strong club. Alitrunk with full complement of flight sclerites and certainly winged when virgin, dorsum evenly arched in profile view. Propodeum unarmed, declivity depressed vertically, propodeal spiracles small, about in the middle of the sclerite. Metapleural gland bulla small and horizontal. Metapleural lobes absent. Middle legs without tibial spurs, basitarsus curved; hind legs with only a pectinate spur. Petiole roughly rectangular, broadly attached to first gastral segment, subpetiolar process narrow and cuneiform. Gaster large and elongate, with similar segments, constriction between the 2 basal segments indistinct. Sting strong and functional. Hairs sparse, pubescences abundant.

Worker and male unknown.

Type-species: *Bannapone mulanae* sp. nov.

Range: Oriental.

Notes: *Bannapone* gen. nov. is distinctly a genus of the tribe Amblyoponini of the subfamily Ponerinae based on the articulation way of the petiole and the first gastral segment although known only from the dealate female caste. The 11-segmented antennae, the special mandible and the extremely small body size indicate the genus displays an isolate evolutionary way in the tribe. According to the features of the mandibles, the new genus is close to *Prionopelta*, but the 2 genera can be distinguished by the characters of mandibles, clypeus, antennae, and gaster. The new genus becomes the fifth living genera of the tribe Amblyoponini in Oriental



Figs. 1 – 15 Worker and dealate female of *Yunodorylus* and *Bannapone*

1 – 6. *Yunodorylus sexspinus* sp. nov., worker; 7 – 9. *Dorylus vishnui* Wheeler, worker; 10 – 12. *Bannapone mulanae* sp. nov., dealate female; 13. *Prionopelta brocha* Wilson, worker; 14 – 15. *Prionopelta* sp., worker. 1, 7, 10, 13, 14 head in full-face view; 2 mandible in dorsal view; 3, 8, 11, 15 body in profile view; 4, 12 alitrunk, petiole and basal segments of gaster in dorsal view; 5 apex of gaster in lateral view; 6, 9 apex of gaster in dorsal view. 7 – 9 after Xu (1994); 13 after Wilson (1958); 14 – 15 after Bolton (1994), drawn from SEM photos. Pilosity omitted from figs. 2, 4, 5, 6, 12, 13, 14, 15.

and Indo-Australian Regions. The 5 genera of the tribe can be separated by the following key.

Key to genera of Amblyoponini of Oriental and Indo-Australian Regions based on the worker and dealate female castes

1. Mandible armed with just 3 teeth ···································2
   Mandible always multidentate, with more than 3 teeth············3

2. Mandible subtriangular, inner margin longer than masticatory margin. The long acute apical tooth of masticatory margin simple and followed by 2 acute triangular teeth. Clypeus very broad. Antennae with 8 – 12 segments. Subpetiolar process broad and large. The basal 2 segments of gaster larger than the other ones and occupied 2/3 length of the gaster, constriction between them distinct (Figs. 13 – 15) (World tropics) ···*Prionopelta* Mayr
   Mandible long triangular, inner margin shorter than masticatory mar-

gin. The long acute apical tooth of masticatory margin bifid at most apex and followed by 2 blunt finger-like teeth. Clypeus very narrow. Antennae with 11 segments. Subpetiolar process narrow and small. The basal 2 segments of gaster as large as the other ones and occupied less than half length of the gaster, constriction between them indistinct (Figs. 10 – 12) (Oriental) ······················ *Bannapone* gen. nov.

3. With head in full-face view the frontal lobes approximately even with, or slightly surpassing, the anterior clypeal margin beneath them. Antennal funiculi markedly compressed (Oriental, Indo-Australian) ·· *Myopopone* Roger

   With head in full-face view the frontal lobes distinctly posterior to the anterior clypeal margin. Antennal funiculi not compressed, approximately round in section···4

4. Mandible pointed at apex, in the form of an acute tooth. Spatulate setae absent from head (World tropics and temperate zones) ······ ·· *Amblyopone* Erichson

   Mandible blunt at apex, rounded or subtruncate in full-face view. Spatulate setae present on head (Malagasy, West Africa, Oriental, Indo-Australian) ··· *Mystrium* Roger

Bannapone mulanae sp. nov. (Figs. 10 – 12)

Holotype dealate female: TL 2.1, HL 0.38, HW 0.32, CI 84, SL 0.20, SI 63, PW 0.28, AL 0.58, ED 0.08, ML 0.30, PL 0.14, DPW 0.20, PH 0.19, LPI 136, DPI 105. Head rectangular and depressed, longer than broad, slightly broader anteriorly. Occipital margin weakly emarginate in the middle. Occipital corners roundly prominent. Lateral sides nearly straight. Mandibles long triangular, inner margin distinctly shorter than masticatory margin. Masticatory margin with 3 teeth, the apical tooth long and acute, bifid at most apex, then followed by 2 blunt finger-like teeth, which slightly expended at apex. Clypeus very narrow and transverse, anterior margin weakly convex. Antennae short, 11-segmented, apex of scape reached to 1/2 of the distance from antennal socket to occipital corner, funiculi 3 – 9 broader than long. Eyes moderate large, situated at the midlength of the side of the head. Ocelli present. Alitrunk with full complement of flight sclerites and certainly winged when virgin. In profile view dorsum of alitrunk evenly convex. Dorsum of propodeum slightly depressed, posterodorsal corner rounded, declivity depressed vertically. In profile view petiolar node roughly rectangular and higher than long, broadly attached to first gastral segment, anterodorsal corner roundly prominent. Subpetiolar process narrow, cuneiform. Gaster large, roughly cylindrical, segments with the similar length, constriction between the 2 basal segments indistinct. Sting long and functional. Mandibles finely rugulose, less shining. Head, alitrunk, petiole and gaster densely and finely punctured and relatively dull, gaster weakly punctured and more shining. Dorsum of head and body, and appendages with abundant decumbent pubescences, erect hairs very sparse and absent on scapes and tibiae. Body in color yellowish brown. Eyes, ocelli area and tegulae black.

Holotype: dealate female, No. A98 – 418, 900 m, Manzhuang Village, Mengla County, Yunnan Province, collected from a soil sample in semi-evergreen monsoon forest, 1998 – Ⅲ – 10 (LIU Tai-Yong).

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⑨ 297-302

云南行军蚁亚科和猛蚁亚科二新属记述

(膜翅目：蚁科)

Q969.554.2

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摘要：在云南西双版纳自然保护区热带雨林内采集并描述行军蚁亚科和猛蚁亚科2新属。云行军蚁属 *Yunodorylus* gen. nov.新属隶属于行军蚁亚科，为单模属，地栖性，其属模六刺云行军蚁 *Y. sexspinus* sp. nov.新种的2个巢群发现于季节性雨林和落叶季雨林的土壤样中。版纳猛蚁属 *Bannapone* gen. nov.新属隶属于猛蚁亚科钝猛蚁族 Amblyoponini，为单模属，其属模木兰版纳猛蚁 *B. mulanae* sp. nov.新种的1头脱翅雌蚁采自半常绿季雨林的土壤样中。

关键词：膜翅目；蚁科；云行军蚁属新属；版纳猛蚁属新属；中国
中图分类号：Q969.554.2 **文献标识码**：A **文章编号**：0254-5853(2000)04-0297-06

(上接第286页)
起点位于腹鳍起点与尾鳍起点的中点。胸鳍长略小于头长，后伸不达腹鳍基，相距2个鳞片。腹鳍略短于胸鳍长，腹鳍基起点与背鳍起点相对。腹鳍起点距胸鳍起点等于距臀鳍起点，后伸不达臀鳍基，与臀鳍相距3~4个鳞片。尾鳍深叉，末端尖。

鳞中等大，胸部鳞变小，背鳍基具鳞鞘，腹鳍基外侧具腋鳞。侧线中央和缓下弯，侧线完全，向后入尾柄的正中。肛门紧靠臀鳍起点。鳃耙短小，排列稀疏。下咽齿侧扁，顶端尖而弯，主行前面第1枚齿最小，第2枚最大。鳔2室，鳔前室卵圆形，后室略长，鳔长为鱼全长的28%。肠长为鱼全长的1.5倍，腹膜黑褐色。

幼鱼体背浅灰色，鳃盖基部具黑斑，背鳍末端桔红色，外缘黑色，鳍间膜具散状黑点。胸、腹、臀鳍淡桔红色，尾鳍基部具圆形黑斑，尾鳍上下叶等长，上下缘末端桔红色，尾鳍上下缘鳍条均具一黑色纵条，下缘的黑色纵条尤其显著 成鱼体背灰黑色，眼红色，鳃盖桔红色，鳃盖基部黑斑更为显著，尾鳍基部具圆形黑斑。腹鳍和臀鳍红色尤其鲜艳。

主要栖息在江河水流较缓的地方，每年7~8月产卵，主食浮游生物以及虾类、螺蛳、甲壳类等小动物，最大个体可达250 mm (Rainboth, 1996)。

分布：在国外广泛分布于泰国、缅甸、老挝、柬埔寨、越南、马来西亚、印度尼西亚等地。此前在中国无记录。隶属鲤科的鲃亚科。主要分布在云南金平金水河(属红河水系)。

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